FACT SHEET FOR NPDES PERMIT WA0001007
GRAYMONT WESTERN US, INC
(Insert date of this fact sheet)

PURPOSE of this Fact Sheet

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for Graymont Western US, Inc. (Graymont Western)

The Environmental Protection Agency (EPA) developed the NPDES permitting program as a tool to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." EPA delegated to Ecology the power and duty to write, issue, and enforce NPDES permits within Washington State. Both state and federal laws require any industrial facility to obtain a permit before discharging waste or chemicals to a water body.

An NPDES permit limits the types and amounts of pollutants the facility may discharge. Those limits are based either on (1) the pollution control or wastewater treatment technology available to the industry, or on (2) the receiving water's customary beneficial uses. This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit *and accompanying fact sheet* for public evaluation before issuing an NPDES permit.

PUBLIC ROLE in the Permit

Ecology makes the draft permit and fact sheet available for public review and comment at least 30 days before issuing the final permit to the facility operator (WAC 173-220-050). Copies of the fact sheet and draft permit for Graymont Western, NPDES permit WA0001007, are available for public review and comment from June 24, 2009, until the close of business July 23, 2009. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement**.

Before publishing the draft NPDES permit, Graymont Western, reviewed it for factual accuracy. Ecology corrected any errors or omissions about the facility's location, product type or production rate, discharges or receiving water, or its history.

After the public comment period closes, Ecology will summarize substantive comments and our responses to them. Ecology will include our summary and responses to comments to this Fact Sheet as **Appendix D - Response to Comments**, and publish it when issuing the final NPDES permit. Ecology will not revise the rest of the fact sheet, but the full document will become part of the legal history contained in the facility's permit file.

John Y. Diamant, P.E. prepared the permit and this fact sheet.

TABLE OF CONTENTS

I. INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), administered by the federal Environmental Protection Agency (EPA). The EPA authorized the state of Washington to manage the NPDES permit program in our state. Our state legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

Ecology adopted rules describing how it exercises its authority:

- Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC)
- Water quality criteria for surface waters (chapter 173-201A WAC) and for ground waters (chapter 173-200 WAC)
- Sediment management standards (chapter 173-204 WAC)
- Submission of Plans and Reports for Construction of Wastewater Facilities (chapter 173-240 WAC)

These rules require any industrial facility operator to obtain an NPDES permit before discharging wastewater to state waters. They also help define the basis for limits on each discharge and for performance requirements imposed by the permit.

Under the NPDES permit program and in response to a complete and accepted permit application Ecology must prepare a draft permit and accompanying fact sheet, and make them available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of 30 days (WAC 173-220-050). (See **Appendix A--Public Involvement** for more detail about the Public Notice and Comment procedures). After the Public Comment Period ends, Ecology may make changes to the draft NPDES permit in response to comments. Ecology will summarize the responses to comments and any changes to the permit in **Appendix D.**

II. BACKGROUND INFORMATION

Table 1. General Facility Information.

Applicant:	Graymont Western US, Inc.
Facility Name and Address:	1220 Alexander Avenue Tacoma, Washington 98421
Type of Facility	Production of calcium oxide (quicklime), calcium hydroxide (slacked lime), and precipitated calcium carbonate
Type of Treatment:	Settling ponds followed by pH adjustment
SIC Code	3274 (lime) and 2816 (calcium carbonate)
Discharge Location:	Blair Waterway (Inner Commencement Bay) Latitude: 47º 16' 16" N Longitude: 122º 23' 48" W

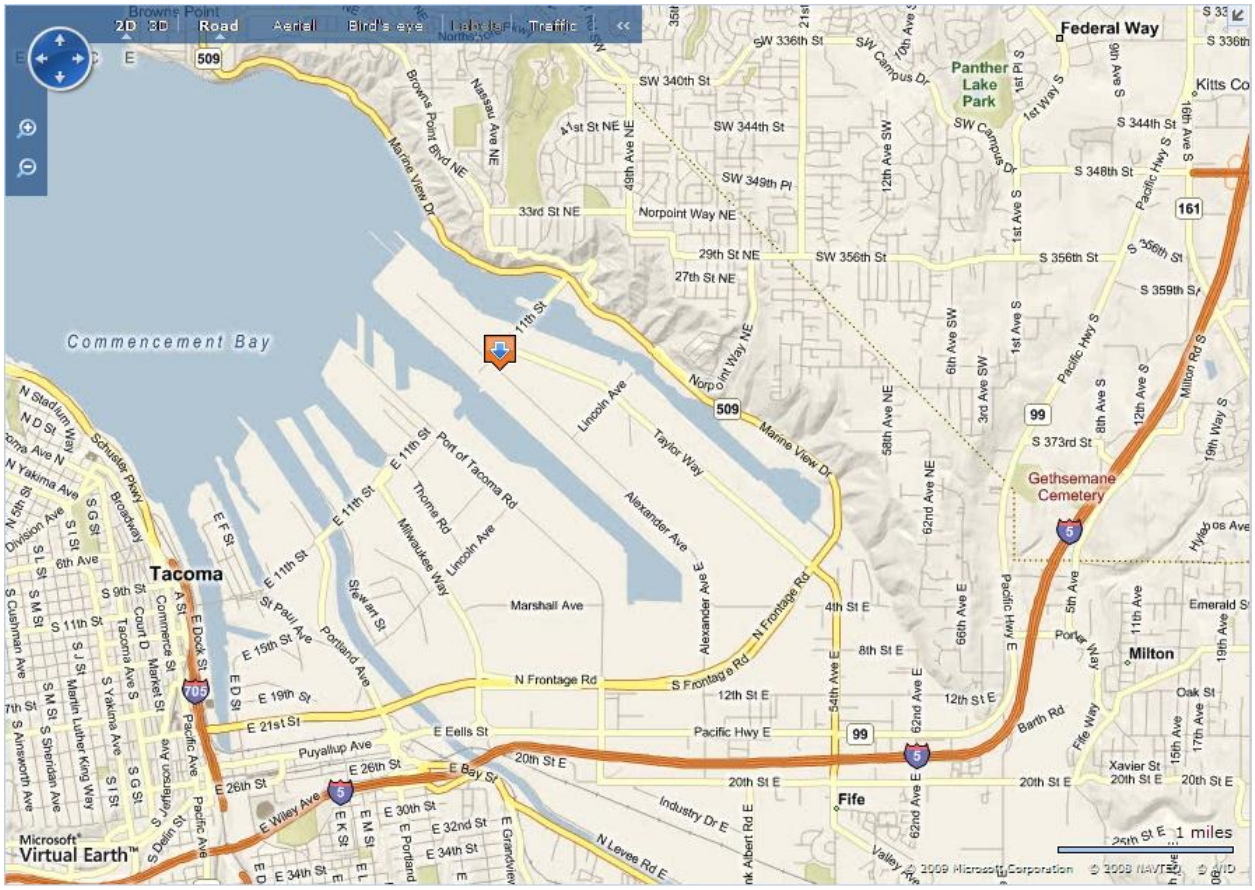


Figure 1. Vicinity Map and Site Location (MSN Maps).

Figure 2. Aerial Site Photo (MSN Maps).

A. Facility Description

History

Graymont Western US, Inc. (Graymont) is located in Tacoma, Washington, in the Commencement Bay area. Continental Lime changed its name to Graymont Western US, Inc. on July 25, 2000. The facility mainly manufactures quicklime. However, it also produces hydrated lime and precipitated calcium carbonate. The facility discharges process wastewater and stormwater to the Blair Waterway. Ecology issued the previous permit for this facility on June 1, 2004.

The facility produces lime and lime related products on an approximately 19.5 acre site. The facility produces lime for commercial sale. Operations at the facility include: unloading and loading facilities for barges, limestone storage, quicklime production using a coal-fired kiln, production of quicklime and precipitated calcium carbonate, and lime products packaging and shipment.

This facility is classified as an EPA minor NPDES facility. The facility also has a Title V Air Operating Permit (#11820) issued by Puget Sound Clean Air Agency and a Shoreline Substantial Development Permit (#590147241) issued by the city of Tacoma.

Industrial Process

The facility produces approximately 912,000 pounds of precipitated calcium carbonate per day. Figure 3 depicts a site plan and Figure 4 provides a schematic flow diagram of the facility.

Limestone (calcium carbonate) is calcined at high temperature in coal-fired rotary kilns to drive off the carbon dioxide to produce quicklime (calcium oxide). On a limited basis, the facility produces hydrated lime (calcium hydroxide), a dry powder, by adding water to quicklime. The process captures carbon dioxide evolved during the production of quicklime and passes it through hydrated lime to form a precipitated calcium carbonate (PCC). No mining of raw materials occurs at the facility.

Graymont is constructing a new limestone grinding plant on a one and one-half acre area on the northeast side of the site. This plant will enable the facility to process limestone and by-product material from the existing limestone operation into a marketable product, pulverized limestone (PLS). Limestone is currently stored outside in a pile on the southern boundary of the site and the byproduct material is currently stored along the northeast boundary of the site. The grinding plant consists of a rotary dryer, a crusher, and four storage silos. The facility will not generate additional process water from the new grinding plant to the water treatment system. Graymont produced 103,000 tons of PLS in 2008.

The design of the plant allows the facility to either contain or direct spilled pollutants to the primary or secondary settling ponds. Following collection and treatment in the settling pond system, the substances should not pose a pollution or threat.

Sulfuric acid (93percent) is stored in a 2,500 gallon above-ground storage tank with containment walls designed to collect any spill of sulfuric acid. In the event of an overflow, the acid drains into the primary settling pond. The facility would treat any spill into the pond by adding a neutralizing agent to adjust the pH to the acceptable range between 6 and 9.

Phosphoric acid (93 percent) is stored in 50 gallon totes (typically, 8 totes total) inside the PCC building. In the event of a spill, the acid drains into the primary settling pond. The facility would treat any spill into the pond by adding a neutralizing agent to adjust the pH to the acceptable range between 6.0 and 9.0.

Process water and Stormwater Treatment

The facility treats both process wastewater and stormwater prior to discharge to the Blair Waterway. The existing treatment process consists of primary settling, secondary settling, and a pH neutralization. The treatment system was designed to handle over 50,000 gallons per day of process water and the runoff from a 25 year, 24-hour storm.

Water from the secondary pond is pumped to a pH adjustment system where sulfuric acid is used to lower the pH to meet the required discharge limits. Both the inflow and outflow are monitored for pH, with feedback provided to assure proper pH adjustment.

The facility stores and recycles compressor cooling water by discharging it first to a pond near the pre-heater and reusing it for cooling.

Water used in scrubbers for air pollution control is normally sent to a holding tank and then shipped off-site. However, occasionally, water left in the tank may overflow to the pond system.

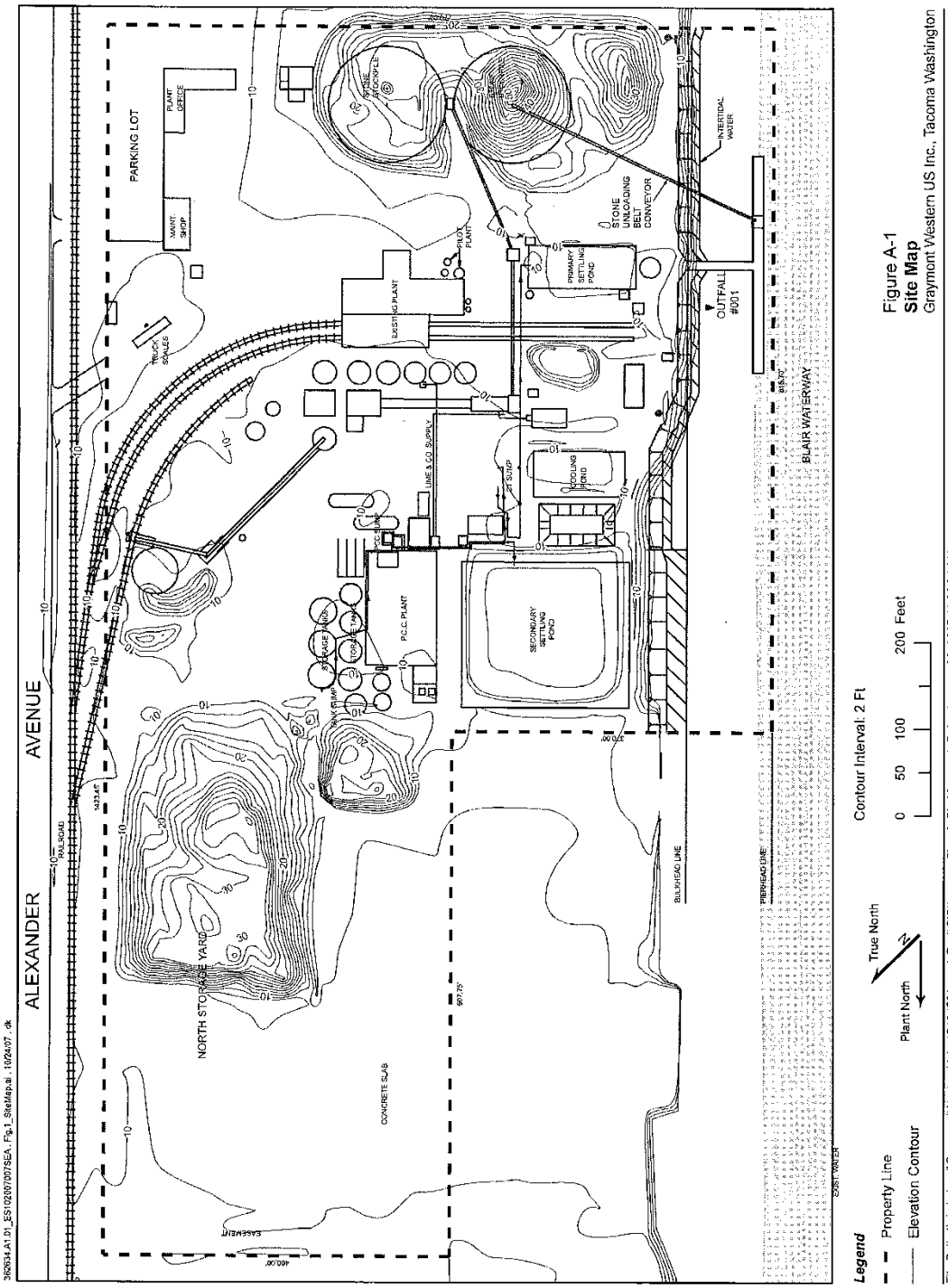


Figure 3. Schematic Flow Diagram.

Graymont Western US Inc., Tacoma Washington
Treatment System Process Flow Diagram

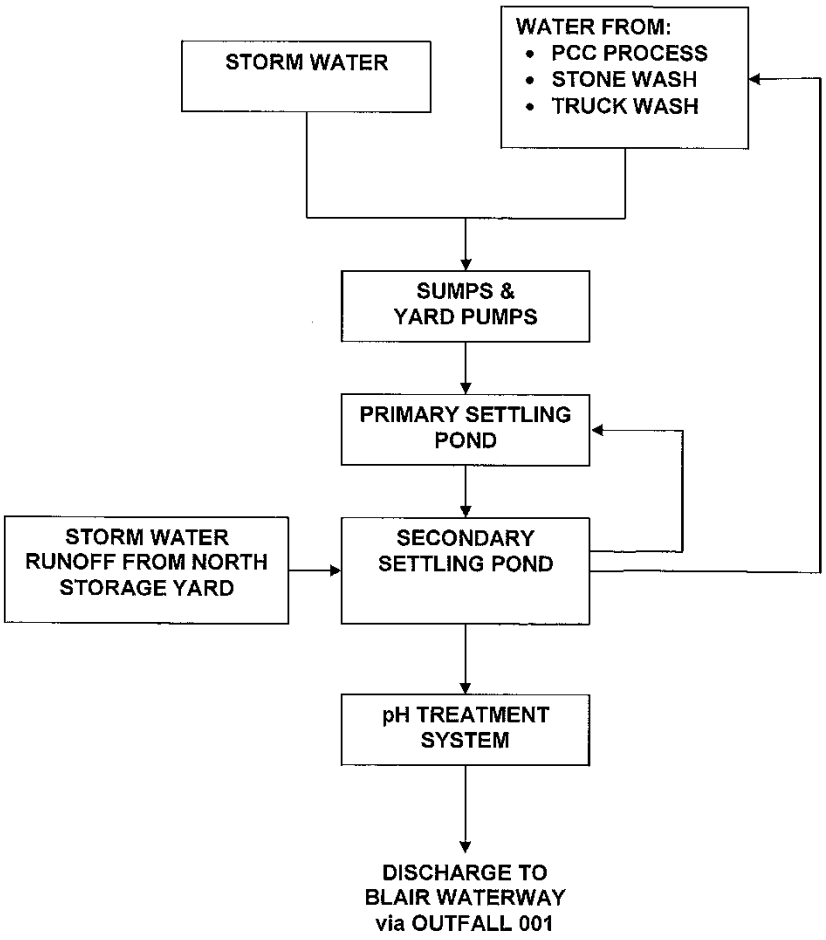


Figure 4. Schematic Flow Diagram.

Approximately 50 trucks are washed at the facility each week to remove any limestone processing residue from the truck. Only the exterior of the truck is washed without the use of any detergents. Washing is accomplished via several overhead water jets located near the hydrated lime building. In addition, before leaving the site, the wheels of the trucks are also washed. The washing of the truck in essence removes any product from the body of the truck. The wash water co-mingles with other process wastewater and storm water before it discharges to the settling pond and Blair Waterway with prior in-line pH neutralization.

The Primary pond measures 50 feet by 125 feet and is 8-10 feet deep. It has a storage capacity of approximately 391,000 gallons. The secondary pond measures 150 feet by 150 feet and is 16 feet deep. The secondary pond has an active storage capacity of approximately 1,271,000 gallons and approximately 359,000 gallons of reserved storage for plant processes. The total capacity of the secondary pond at this time is unknown since it is partially full of solids. Neither of the ponds are lined or have a leak detection system.

A ditch drains the northern portion of the site and is pumped to the secondary pond. Runoff from the rest of the site flows to a number of sumps from which water is then pumped to one of the two ponds generally through small-diameter pipe. Some of the pumps have float switches that activate the pump when the water level rises. Process water from a number of plant activities also flows or is pumped to the primary pond. Water from the primary pond is then pumped to the secondary pond.

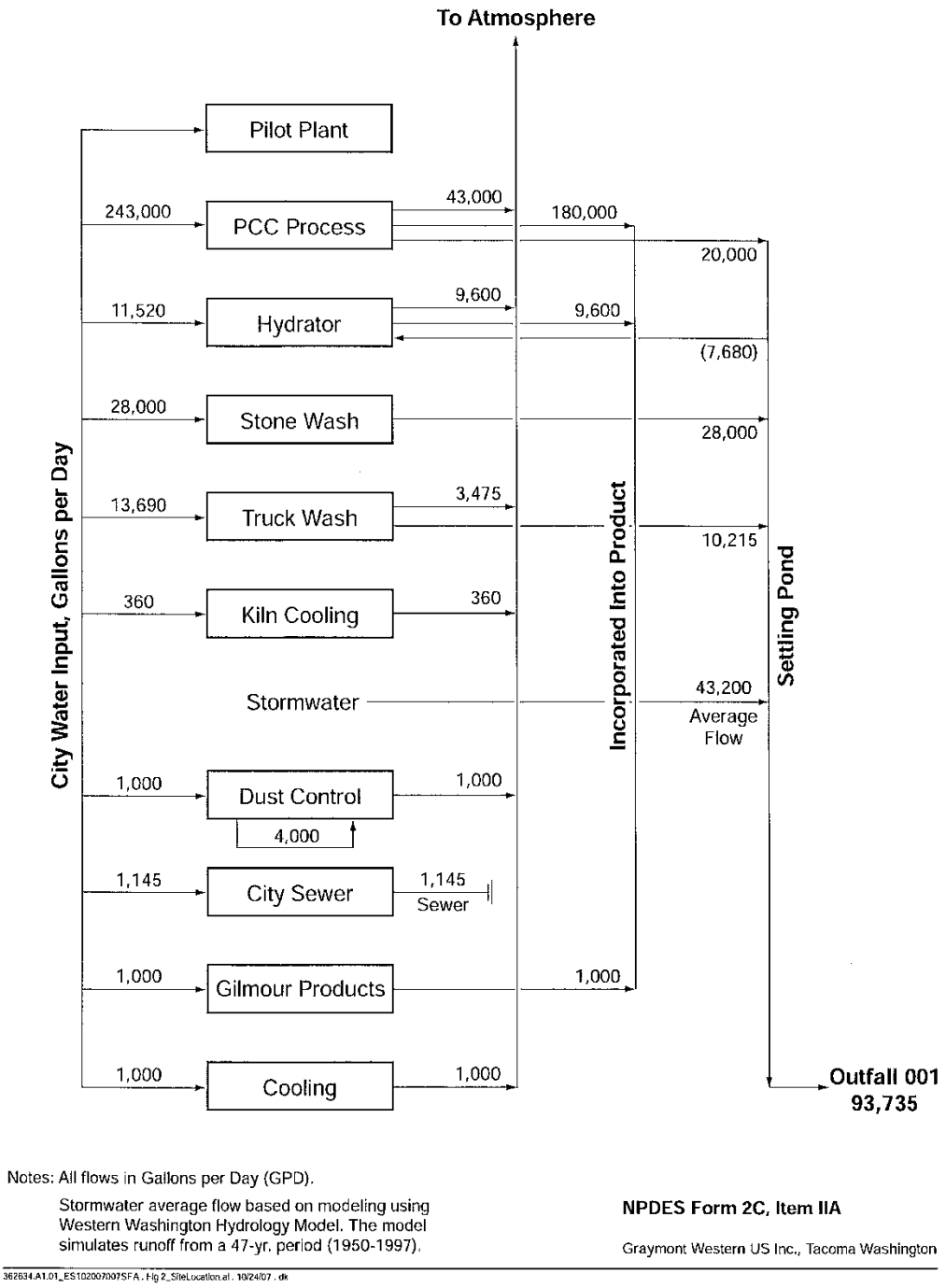
Water use at the plant is not actively measured. Estimates of the major water uses are provided in the Water Flow Balance Diagram (Figure 5). During the warmer months, water from the secondary pond is used to provide a portion of the plant's process water.

Solid Wastes

This facility generates materials that are recycled and materials that are disposed of as general rubbish, such as bags, office waste, etc. The lime production and precipitated calcium carbonate process results in the generation of one waste stream that Graymont sends offsite for disposal. This waste stream consists of slaker rejects. Other lower grade materials or byproducts (reject material, kiln dust, settling pond solids, and baghouse dust) are either reintroduced into the production process or sold as an inexpensive lime product called Econolime.

Materials recycled at the plant include scrap aluminum and steel, cardboard, and wood pallets. Scrap aluminum and steel are typically generated by maintenance and repair work that is performed throughout the plant. Receipt of office items, some raw materials, and miscellaneous products that are used throughout the plant is a source of the cardboard, miscellaneous packaging materials, and wood pallets.

Domestic garbage primarily consists of scrap wood, various food scraps or kitchen waste, vegetation (weeds), and various disposable containers or packaging materials (mostly paper, plastic, glass, or metal). These items are generated in a number of locations throughout the plant. The main office, lab, and maintenance shop generate the majority of the paper products that require disposal.



Notes: All flows in Gallons per Day (GPD).

Stormwater average flow based on modeling using Western Washington Hydrology Model. The model simulates runoff from a 47-yr. period (1950-1997).

NPDES Form 2C, Item IIA

Graymont Western US Inc., Tacoma Washington

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Figure 5. Water Flow Balance Diagram.

Slaker rejects are produced form insoluble impurities in the slaked lime consisting mainly of un-calcined calcium carbonate "core," silica, and un-reacted quicklime. The rejects are fine to small particles with a pH of approximately 12.4.

Table 2. Solid Waste Generated and End Disposal Method.

Solid Waste	Generation Rate/Year	End Disposal Method
Aluminum and steel	Approx. 250 pounds	Reused or sent to a recycler.
Wooden pallets	Approx. 1,000 each	Reused or sent to a recycler.
Domestic garbage	Approx. 540 cubic yards	Picked up by local disposal service.
Slaker waste	Approx. 3,000 tons	Stored onsite for recycling or hauled off to an approved landfill (slaker waste hauled offsite ranges from 750-10,000 tons/year).

These solid waste generation rates reflect the quantities of wastes generated before completion of the plant expansion. The new plant expansion uses slaker waste as one of the raw materials in its processes so this waste volume will decrease. Other solid waste may be expected to increase moderately.

Discharge Outfall

Process wastewater and stormwater discharges to the Blair Waterway via outfall 001. Outfall 001 is a 4-inch diameter pipe, single port outfall located approximately 50 feet from the shoreline and maintains submergence at approximately 2 feet via a buoyant surface jet.

B. Permit Status

Graymont Western US submitted an application for permit renewal which Ecology received on April 14, 2008. Ecology accepted the application as complete on April 23, 2008.

Ecology issued the previous permit for this facility on June 1, 2004. The previous permit placed effluent limits on total suspended solids and pH.

C. Summary of Compliance with Previous Permit Issued

Ecology staff last conducted a non- sampling compliance inspection on July 14, 2008.

Graymont Western has, for the most part, complied with the effluent limits and permit conditions throughout the duration of the permit issued on June 1, 2004**.** Ecology assessed facility compliance based on its review of the facility's Discharge Monitoring Reports (DMRs) and on inspections conducted by Ecology.

The only noncompliance occurred during the 4th Quarter of 2006 and the 1st Quarter of 2007. The DMRs for these quarters reported that the facility exceeded its total suspended solids' maximum daily and average monthly limits. The violations during the 4th Quarter of 2006 were reportedly due to record heavy rainfall occurring on November 6-7. The violations during the 1st Quarter of 2007 were reportedly due to routine cleanup of the settling pond. As soon as the facility noted the cloudy water it immediately ceased effluent discharge. Graymont estimated that it discharged cloudy water for about 10 minutes.

D. Wastewater Characterization

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. The permit application showed elevated levels of some of the tested parameters and suggest possible pollutants of concern. These parameters include: sulfate (123 mg/L [based on 1 sample]), total arsenic (1.3 µg/L [based on 1 sample]), total chromium (59.6 µg/L [based on 1 sample]), and total mercury (maximum daily concentration of 402 ng/L and an average of 223 ng/L over 5 samples)). Of these parameters, Ecology is most concerned about total arsenic, and total mercury.

The likely source for total arsenic is from the ambient environment as confirmed by work done by CH2M Hill in 2006 (series of memoranda regarding arsenic).

The coal the facility uses to fuel its rotary kiln is the likely source for mercury. The accompanying permit requires Graymont Western to monitor for mercury to provide more background data and also to assess improvements as it implements BMPs it will develop as part of the permit required Stormwater Pollution Prevention Plan (SWPPP). The facility must develop BMPs for proper management and storage of its coal pile. If it is necessary, Ecology may establish mercury limits in the next permit to enforce the human health mercury criteria (150 ng/L) and the chronic mercury criteria (25 ng/L) for marine waters.

Graymont must also measure turbidity and temperature for effluent characterization. When the permit is up for renewal, Ecology will evaluate the data and, if necessary, establish turbidity and temperature effluent limits.

The tabulated data represents the quality of the effluent discharged from the 2nd quarter of 2004 through the 3rd quarter of 2008. The effluent is characterized as follows:

Table 3. Wastewater Characterization.

Parameter	Average Concentration	Maximum Concentration
TSS, mg/L	30.3	143.9

Parameter	Daily Minimum	Daily Maximum
pH, standard units	6.5	8.4

E. Description of the Receiving Water

Graymont Western discharges to the Blair Waterway (Inner Commencement Bay). The Port of Tacoma area is heavily industrialized and many point sources and non-point sources may affect the receiving water.

No known ambient receiving water background data is available at this time for the Blair Waterway although Ecology collects routine ambient data at a station in Commencement Bay. The accompanying permit requires Graymont Western to collect receiving water temperature.

F. SEPA Compliance

Regulation exempts reissuance or modification of any wastewater discharge permit from the SEPA process as long as the permit contains conditions that are no less stringent than state rules and regulations. The exemption applies only to existing discharges, not to new discharges.

III. PROPOSED PERMIT CONDITIONS

Federal and state regulations require that effluent limits in an NPDES permit must be either technology or water quality-based.

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 Code of Federal Regulations [CFR] 125.3, and chapter 173-220 WAC).
- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (chapter 173-201A WAC), Ground Water Standards (chapter 173-200 WAC), Sediment Quality Standards (chapter 173-204 WAC) or the National Toxics Rule (40 CFR 131.36).
- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, etc.). Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants**.** Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Nor does Ecology usually develop permit limits for pollutants that were not reported in the permit application but that may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. During the five-year permit term, the facility's effluent discharge conditions may change from those conditions reported in the permit application. The facility must notify Ecology, as described in 40 CFR 122.42(a), if significant changes occur in any constituent. Industries may be in violation of their permit until Ecology modifies the permit to reflect additional discharge of pollutants.

A. Technology-Based Effluent Limits

The Revised Code of Washington (RCW) 90.48.010, 90.52.040 and 90.54.020 requires the use of all known, available and reasonable methods of prevention, control and treatment (AKART) before any wastes and other materials and substances enter state waters.

Federal Industrial Point Source Effluent Limitations

The facility operates under SIC codes 3274 (for manufacture of lime) and 2816 (for producing precipitated calcium carbonate). The operations at Graymont Western US, Inc. fall under the provisions of Code of Federal Regulations 40 (CFR) Part 415, "Inorganic Chemicals Manufacturing Point Source Category," Subpart E (40 CFR 415.50-415.56) Calcium Oxide Production, Subpart AD (40 CFR Part 415.300-415.302) Calcium Carbonate Production, and Subpart AE (40 CFR 415.310-415.316), Calcium Hydroxide Production.

<u>Effluent limitation Based on Subpart E of 40 CFR 415 -- Calcium Oxide Production Subcategory</u>

1. Effluent limits representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

The facility must not discharge process wastewater pollutants into navigable waters. However, discharge of process wastewater equivalent to the volume of precipitation in excess of a 10 year, 24-hour storm event is allowed provided that a process wastewater impoundment is designed, constructed and operated to contain the precipitation from a 10 year, 24-hour storm event. The monthly average discharge of process wastewater is equal to the difference between the mean precipitation for that month and the mean evaporation for that month. Any process wastewater discharged from the site must comply with the following:

TSS: Daily maximum - 50 mg/L; Monthly average - 25 mg/L

pH: within the range of 6.0 to 9.0

2. Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

The facility must not discharge process wastewater pollutants into navigable waters. However, discharge of process wastewater equivalent to the volume of precipitation in excess of a 25 year, 24-hour storm event is allowed provided that a process wastewater impoundment is designed, constructed and operated to contain the precipitation from a 25 year, 24-hour storm event.

Graymont Western US, Inc. has already established a settling pond system capable of holding a 25 year, 24-hour storm (as per report submitted by Bison Engineering and Research, July 1987).

There is no discharge from the calcium oxide production.

Effluent Limits Based on Subpart AD of 40 CFR Part 415 -- Calcium Carbonate Production Subcategory

Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT) for the production of calcium carbonate by the "milk of lime process" (reaction of slaked lime and carbon dioxide):

TSS (lbs/1,000 lbs product): Daily maximum - 0.56, Monthly average - 0.28

pH: within the range of 6.0 to 9.0

The permit application states that the average daily production of PCC is anticipated to be 912,000 pounds/day. This results in calculated TSS categorical discharge limits of: 511 lbs/day for daily maximum, and 255 lbs/day for monthly average. Using a wet weather discharge flow of 93,735 gallons/day, the corresponding TSS concentrations can be calculated. This flow includes modeled flow rates for the 25 year, 24-hour storm event and is a conservative number to use since it would result in lower TSS concentrations than during dry summer conditions when no stormwater occurs. The formula used to calculate TSS concentrations is:

TSS Conc. (mg/L) = TSS categorical discharge limit (lbs/day) ÷ 8.341 ÷ discharge flow (million gallons per day [MGD])

The calculated TSS concentrations are: 654 mg/L for daily maximum and 326 mg/L monthly average. It should be noted that the previous TSS limits of 50 mg/L (daily maximum) and 25 mg/L (monthly average) are much more stringent than the categorical effluent limits and will be retained in the accompanying permit.

Effluent Limitation Based on Subpart AE of 40 CFR Part 415 -- Calcium Hydroxide Production Subcategory

Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

The facility must not discharge process wastewater pollutants into navigable waters.

Graymont does not discharge wastewater from the calcium oxide and calcium hydroxide production.

Total Suspended Solids

Ecology established TSS limits of 50 mg/L (daily maximum) and 25 mg/L (monthly average) in previous permits. All discharge monitoring data indicates Graymont has consistently complied with these TSS limits. Using best professional judgment, Ecology chose to retain these limits for TSS to fulfill the requirements of AKART as well as the federal effluent guidelines.

pH

The technologically-based limit of pH requires pH to remain with the range of 6.0 to 9.0. Ecology established this limit in previous permits and it will be retained in the accompanying permit. This limit is consistent with AKART and federal effluent guidelines.

B. Surface Water Quality-Based Effluent Limits

The Washington State Surface Water Quality Standards (chapter 173-201A WAC) were designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet established surface water quality standards (WAC 173-201A-510). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily loading study (TMDL).

Numerical Criteria for the Protection of Aquatic Life and Recreation

Numerical water quality criteria are published in the Water Quality Standards for Surface Waters (chapter 173-201A WAC). They specify the levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. Ecology uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numerical Criteria for the Protection of Human Health

The U.S. EPA has published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State (40 CFR 131.36). These criteria are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The Water Quality Standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative Criteria

Narrative water quality criteria (e.g., WAC 173-201A-240(1); 2006) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

- Adversely affect designated water uses.
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria protect the specific designated uses of all fresh waters (WAC 173-201A-200, 2006) and of all marine waters (WAC 173-201A-210,; 2006) in the state of Washington.

Antidegradation

The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2006) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three Tiers of protection (described below) for surface waters of the state.

Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

This facility must meet Tier I requirements.

- Dischargers must maintain and protect existing and designated uses. Ecology may not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC.

Ecology’s analysis described in this section of the fact sheet demonstrates that the existing and designated uses of the receiving water will be protected under the conditions of the proposed permit.

A facility must prepare a Tier II analysis when all three of the following conditions are met:

- The facility is planning a new or expanded action.
- Ecology regulates or authorizes the action.

- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

This facility must meet Tier II requirements and a Tier II Analysis must be conducted when the three bullets apply. A Tier II Analysis focuses on evaluating and incorporating feasible alternatives that would eliminate or significantly reduce the level of degradation. The Analysis also includes a review of the benefits and costs associated with allowing the lowering of water quality, and prohibit actions from lowering water quality that do not provide overriding public benefits**.** At this time, Ecology believes Tier II requirements have been met.

Ecology has determined that a Tier II analysis is not required for Graymont Western's expansion of the limestone crushing plant by their north storage yard. Graymont Western has demonstrated that they can adequately capture and treat the additional stormwater generated from this expansion and any new residual process water from their new operations. The amount of process water from the new crushing plant operation is anticipated to be negligible. Graymont Western will actually reduce its impact to the Blair Waterway by utilizing the limestone material stored in the north storage yard. This material is a potential source of high pH when stormwater contacts the pile and infiltrates into the groundwater and into the adjacent drainage ditch. Both the drainage ditch and the groundwater seeps discharge to the Blair Waterway and could impact its pH.

Tier III requirements do not apply to this facility.

Mixing Zones

A mixing zone is the defined area in the receiving water surrounding the discharge port(s), where wastewater mixes with receiving water. Within mixing zones the pollutant concentrations may exceed water quality numeric criteria, so long as the diluting wastewater doesn't interfere with designated uses of the receiving water body (e.g., recreation, water supply, and aquatic life and wildlife habitat, etc.). The pollutant concentrations outside of the mixing zones must meet water quality numeric criteria.

State and federal rules allow mixing zones because the concentrations and effects of most pollutants diminish rapidly after discharge, due to dilution. Ecology defines mixing zone sizes to limit the amount of time any exposure to the end-of-pipe discharge could harm water quality, plants, or fish.

The state's water quality standards allow Ecology to authorize mixing zones for the facility's permitted wastewater discharges only if those discharges already receive all known, available, and reasonable methods of prevention, control and treatment (AKART). Mixing zones typically require compliance with water quality criteria within a specified distance from the point of discharge; and use no more than 25 percent of the available width of the water body for dilution. Ecology uses modeling to estimate the amount of mixing within the mixing zone and determine the potential for violating the water quality standards at the edge of the mixing zone and derive any necessary effluent limits. Steady-state models are the most frequently used tools for conducting mixing zone analyses. Ecology chooses values for each effluent and for receiving water variables that correspond to the time period when the most critical condition is likely to occur (see Ecology's Permit Writer's Manual). Each critical condition parameter (by itself) has a low probability of occurrence and the resulting dilution factor is conservative. The term "reasonable worst-case" applies to these values.

The mixing zone analysis produces a numerical value called a dilution factor (DF). A dilution factor represents the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. For example, a dilution factor of 10 means the effluent comprises 10 percent by volume and the receiving water comprises 90 percent of the total volume at the boundary of the mixing zone. Ecology

uses dilution factors with the water quality criteria to calculate reasonable potentials and effluent limits. Water quality standards include both aquatic life-based criteria and human health-based criteria. The former are applied at both the acute and chronic mixing zone boundaries; the latter are applied only at the chronic boundary. The concentration of pollutants at the boundaries of any of these mixing zones may not exceed the numerical criteria for that zone.

Each aquatic life acute criterion is based on the assumption that organisms are not exposed to that concentration for more than one-hour and more often than one exposure in three years. Each aquatic life chronic criterion is based on the assumption that organisms are not exposed to that concentration for more than four consecutive days and more often than once in three years.

The two types of human health-based water quality criteria distinguish between those pollutants linked to non-cancer effects (non-carcinogenic) and those linked to cancer effects (carcinogenic). The human health-based water quality criteria incorporate several exposure and risk assumptions. These assumptions include:

- A 70-year lifetime of daily exposures.
- An ingestion rate for fish or shellfish measured in kg/day.
- An ingestion rate of two liters/day for drinking water
- A one-in-one-million cancer risk for carcinogenic chemicals.

The accompanying permit does not authorize an acute or chronic mixing zone at this time. The Permittee may request mixing zones by submitting a proposal to Ecology. A Mixing Zone Study which includes modeling and/or dye studies would be required.

Mixing zone modeling was performed in the past by Continental Lime (previous Tradename for the facility). Ecology authorized acute and chronic mixing zones in a permit modification dated January 13, 2000. In the past, the record implies the facility needed the mixing zone to comply with the whole effluent toxicity (WET) rule. However, in the previous permit (issued June 1, 2004), Ecology removed the mixing zones from the previous permit since the facility no longer needed them to comply with Water Quality Standards. The previous acute mixing zone authorized was 8.4 and the chronic mixing zone was 100.

Since discharge conditions, Ecology's mixing zone policy and regulations have changed since 2000, the facility must submit a new study for Ecology review if Graymont desires consideration for a new mixing zone and needs one to meet water quality standards. If Graymont wishes to pursue this, they should submit a mixing zone study proposal to Ecology for approval.

C. Designated Uses and Surface Water Quality Criteria

Applicable designated uses and surface water quality criteria are defined in chapter 173-201A WAC. In addition, the U.S. EPA set human health criteria for toxic pollutants (40 CFR 131.36). Criteria applicable to this facility's discharge are summarized in **Table 5**.

- Aquatic life uses are designated using the following general categories. All indigenous fish and non-fish aquatic species must be protected in waters of the state.

(a) **Extraordinary quality** salmonid and other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning.

(b) **Excellent quality** salmonid and other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning.

(c) **Good quality** salmonid migration and rearing; other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning.

(d) **Fair quality** salmonid and other fish migration.

The Aquatic Life Uses for this receiving water are identified below.

Table 4. Aquatic Life Uses & Associated Criteria.

Good quality	
Temperature Criteria – Highest 1D MAX	19°C (66.2°F)
Dissolved Oxygen Criteria – Lowest 1 Day Minimum	5.0 mg/L
Turbidity Criteria	• 10 NTU over background when the background is 50 NTU or less; or • A 20 percent increase in turbidity when the background turbidity is more than 50 NTU.
pH Criteria	pH must be within the range of 7.0 to 8.5 with a human-caused variation within the above range of less than 0.5 units.

- The **recreational uses** are primary contact recreation and secondary contact recreation.

The recreational uses for this receiving water are identified below.

Table 5. Recreational Uses.

Recreational use	**Criteria**
Secondary Contact Recreation	Enterococci organism levels must not exceed a geometric mean value of 70 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 208 colonies/100 mL.

- The **miscellaneous marine water uses** are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

The Blair Waterway does not have any Category 5 listings on the 303(d) list at this time. However, benzene in water is listed as a parameter of concern (Category 2). The Category 2 listing is based on one excursion beyond the National Toxics Rule (40 CFR Part 131) criterion at USEPA station 11Y007 (Mid-Channel of Blair- 100 yards upstream from Lincoln Street) on 6/3/80.

D. Evaluation of Surface Water Quality-Based Effluent Limits for Numeric Criteria

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as biological oxygen demand (BOD) is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

Temperature--The state temperature standards (WAC 173-201A-200-210 and 600-612) include multiple elements:

- Annual summer maximum threshold criteria (June 15 to September 15)
- Supplemental spawning and rearing season criteria (September 15 to June 15)
- Incremental warming restrictions
- Protections against acute effects

Ecology evaluates each criterion independently to determine reasonable potential and derive permit limits.

- **Annual summer maximum and supplementary spawning/rearing criteria**

  Each water body has an annual maximum temperature criterion [WAC 173-201A-200(1) (c), 210(1)(c), and Table 602]. These threshold criteria (e.g., 12, 16, 17.5, 20°C) protect specific categories of aquatic life by controlling the effect of human actions on summer temperatures.

  Some waters have an additional threshold criterion to protect the spawning and incubation of salmonids (9°C for char and 13°C for salmon and trout) [WAC 173-201A-602, Table 602]. These criteria apply during specific date-windows.

  The threshold criteria apply at the edge of the chronic mixing zone. Criteria for most fresh waters are expressed as the highest 7-Day average of daily maximum temperature (7-DADMax). The 7-DADMax temperature is the arithmetic average of seven consecutive measures of daily maximum temperatures. Criteria for marine waters and some fresh waters are expressed as the highest 1-Day annual maximum temperature (1-DMax).

- **Incremental warming criteria**

  The water quality standards limit the amount of warming human sources can cause under specific situations [WAC 173-201A-200(1)(c)(i)-(ii), 210(1)(c)(i)-(ii)]. The incremental warming criteria apply at the edge of the chronic mixing zone.

  At locations and times when background temperatures are cooler than the assigned threshold criterion, point sources are permitted to warm the water by only a defined increment. These increments are permitted only to the extent doing so does not cause temperatures to exceed either the annual maximum or supplemental spawning criteria.

  At locations and times when a threshold criterion is being exceeded due to natural conditions, all human sources, considered cumulatively, must not warm the water more than 0.3°C above the naturally warm condition.

When Ecology has not yet completed a TMDL, our policy allows each point source to warm water at the edge of the chronic mixing zone by 0.3°C. This is true regardless of the background temperature and even if doing so would cause the temperature at the edge of a standard mixing zone to exceed the numeric threshold criteria. Allowing a 0.3°C warming for each point source is reasonable and protective where the dilution factor is based on 25 percent or less of the critical flow. This is because the fully mixed effect on temperature will only be a fraction of the 0.3°C cumulative allowance (0.075°C or less) for all human sources combined.

- **Temperature Acute Effects**

  Instantaneous lethality to passing fish: The upper 99th percentile daily maximum effluent temperature must not exceed 33°C; unless a dilution analysis indicates ambient temperatures will not exceed 33°C 2-seconds after discharge.

  General lethality and migration blockage: Measurable (0.3°C) increases in temperature at the edge of a chronic mixing zone are not allowed when the receiving water temperature exceeds either a 1DMax of 23°C or a 7DADMax of 22°C.

  Lethality to incubating fish: Human actions must not cause a measurable (0.3°C) warming above 17.5°C at locations where eggs are incubating.

Ecology does not have sufficient information on the temperature of the effluent or the receiving water to determine compliance with water quality criteria for temperature. The proposed permit requires Graymont Western to monitor effluent and receiving water temperature and report the results to Ecology.

pH--Compliance with the technology-based limits of 6.0 to 9.0 will assure compliance with the water quality standards of surface waters because of the high buffering capacity of marine water.

Turbidity--Turbidity is not considered a pollutant of concern for the discharge at this facility when the treatment system is operating properly. The clarity from the water after settling is high. As such, Ecology believes total suspended solids monitoring is a more appropriate indicator of any abnormality in the discharge and cloudiness of the water.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require Ecology to place limits in NPDES permits on toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. Ecology does not exempt facilities with technology-based effluent limits from meeting the surface water quality standards.

The following toxic pollutants have been measured in the discharge: mercury, arsenic, and chromium. The accompanying permit requires Graymont Western to measure mercury and hexavalent chromium so Ecology can evaluate compliance with water quality standards. Previous studies by CH2M Hill have already shown that the source of arsenic concentrations in the effluent are the City water supply used in the plant and were detected in the ambient receiving water and environment (most likely due to residual contamination from the ASARCO smelter plant). Ecology has begun working with Graymont Western to develop better BMPs to reduce possible sources of mercury primarily from their coal pile. The proposed permit requires the facility to prepare a stormwater pollution prevention plan including BMPs. Once the facility has collected more characterization data, Ecology may derive effluent limits for mercury and hexavalent chromium at the time of permit renewal, if necessary.

Water quality criteria for most metals published in chapter 173-201A WAC are based on the dissolved fraction of the metal (see footnotes to table WAC 173-201A-240(3); 2006). Graymont Western may

provide data clearly demonstrating the seasonal partitioning of the dissolved metal in the ambient water in relation to an effluent discharge. Ecology may adjust metals criteria on a site-specific basis when data is available clearly demonstrating the seasonal partitioning in the ambient water in relation to an effluent discharge.

E. Whole Effluent Toxicity

The water quality standards for surface waters forbid discharge of effluent that causes toxic effects in the receiving waters. Many toxic pollutants cannot be measured by commonly available detection methods. However, laboratory tests can measure toxicity directly, by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

- *Acute toxicity tests measure mortality as the significant response* to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests find early indications of any potential lethal effect of the effluent on organisms in the receiving water.
- *Chronic toxicity tests measure various sublethal toxic responses* such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test on an organism with an extremely short life cycle, or a partial life cycle test during a critical stage of a test organism's life. Some chronic toxicity tests also measure organism survival.

Ecology-accredited WET testing laboratories use the proper WET testing protocols, fulfill the data requirements, and submit results in the correct reporting format. Accredited laboratory staff know about WET testing and how to calculate an NOEC, LC_{50}, EC_{50}, IC_{25}, etc. Ecology gives all accredited labs the most recent version of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* (http://www.ecy.wa.gov/biblio/9580.html), which is referenced in the permit. Ecology recommends that Graymont send a copy of the acute or chronic toxicity sections(s) of its NPDES permit to the laboratory.

WET testing conducted during effluent characterization showed no reasonable potential for effluent discharges to cause receiving water acute toxicity. The proposed permit will not impose an acute WET limit. Graymont must retest the effluent before submitting an application for permit renewal. In addition:

- If this facility makes process or material changes which, in Ecology's opinion, increase the potential for effluent toxicity, then Ecology may (in a regulatory order, by permit modification, or in the permit renewal) require the facility to conduct additional effluent characterization.
- If WET testing conducted for submittal with a permit application fails to meet the performance standards in WAC 173-205-020, Ecology will assume that effluent toxicity has increased. Graymont may demonstrate to Ecology that effluent toxicity has not increased, by performing additional WET testing after the process or material changes have been made.

Due to the nature of the discharge (predominantly stormwater) and pollutants of concern identified, Ecology has not required routine chronic WET characterizations or permit limits. Ecology reserves the right to require chronic whole effluent toxicity characterizations in the future if Ecology determines it to be appropriate.

F. Human Health

Washington's water quality standards include 91 numeric human health-based criteria that Ecology must consider when writing NPDES permits. These criteria were established in 1992 by the U.S. EPA in its National Toxics Rule (40 CFR 131.36). The National Toxics Rule allows states to use mixing zones to evaluate whether discharges comply with human health criteria.

Ecology determined the effluent may contain mercury posing a risk to human health. Ecology determined this because data or process information indicates regulated chemicals occur in the discharge.

Ecology did not conduct a determination of the discharge's potential to violate the water quality standards as required by 40 CFR 122.44(d) because it did not have adequate data. The proposed permit requires the discharger to collect and submit more characterization data so Ecology can evaluate it at the next permit reissuance. Then Ecology will follow the procedures published in the Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-001) and Ecology's Permit Writer's Manual (Ecology Publication 92-109, July, 2006) to make this reasonable potential determination.

Arsenic has been detected to be above human health criteria. Consequent testing by CH2M Hill shows that the background receiving water, groundwater, and the City water supply had concentrations above human health criteria. Furthermore, CH2M Hill's study suggests that the seepage water into groundwater from their ponds contained arsenic concentrations less than the receiving water and upgradient groundwater concentrations. Therefore, Ecology concluded that Graymont Western was not causing elevated arsenic concentrations in the Blair Waterway and did not deem it appropriate to hold Graymont Western to the arsenic human health criteria.

The human health based criteria for arsenic is 0.018 µg/L based on consumption of water and fish. This is the fresh water criteria and is based on the inorganic fraction of arsenic only. The criteria is applicable at the edge of a mixing zone with a dilution factor established using the river harmonic mean flow. The arsenic human health criteria is based on a 70-year lifetime of daily exposures, two liters/day ingestion rate for drinking water, 6.5 grams/day ingestion rate for fish or shellfish, and a one-in-one million excess cancer risk.

The arsenic human health based criteria of 0.018 µg/L as established in the National Toxics Rule differs from the maximum contaminant level (MCL) of 50 µg/L established in the Safe Drinking Water Act (SDWA). The August 5, 1997 Federal Register (California Toxics Rule) cited an EPA document entitled: Issues Related to Health Risk of Arsenic. In this document, EPA summarized the controversial health risk issues associated with regulation of arsenic, but most importantly the document contains a risk management decision made by the EPA assistant administrators of the different offices that deal with arsenic regulation. This decision is written as follows (direct excerpt from document):

> *Publish a notice which announces that as a risk management decision, EPA is in the process of conducting a reassessment in order to reconcile the CWA and SDWA criteria. The result of this reassessment would be presented in a risk characterization. During the reassessment, the existing criteria would remain in place. EPA would work with NTR States and others to resolve special problems in the implementation of those criteria through special regulatory relief mechanisms.*

The December 10, 1998, Federal Register (Vol. 63, No. 237, pages 68354-68363) reiterated EPA's position that the criteria for arsenic was currently being re-assessed and that upon completion of the reassessment, EPA would publish the revised criteria as appropriate.

It should also be noted that stormwater is a discontinuous discharge and is approximately present only during nine months of the year. It is thus not clear how the criteria (or a modification thereof to allow for a discontinuous exposure) would be applied to stormwater discharge.

At the present time, Ecology does not have an implementation policy on arsenic criteria established in the National Toxics Rule as it applies to stormwater discharge and, as such, it will not be included as an effluent limitation in the Permit at this time. However, best management practices should be continued to be implemented and/or improved to reduce arsenic concentrations in the discharge.

G. Sediment Quality

The aquatic sediment standards (WAC 173-204) protect aquatic biota and human health. Under these standards Ecology may require a facility to evaluate the potential for its discharge to cause a violation of sediment standards (WAC 173-204-400). You can obtain additional information about sediments at the Aquatic Lands Cleanup Unit website. http://www.ecy.wa.gov/programs/tcp/smu/sediment.html

Through a review of the discharger characteristics and of the effluent characteristics, Ecology determined that this discharge has no reasonable potential to violate the Sediment Management Standards.

H. Ground Water Quality Limits

The Ground Water Quality Standards, (chapter 173-200 WAC), protect beneficial uses of ground water. Permits issued by Ecology must not allow violations of those standards (WAC 173-200-100).

Graymont Western US does not intentionally discharge wastewater to ground and therefore Ecology imposed no permit limits to protect ground water.

Ecology is concerned about potential groundwater infiltration from the site operations and from the two ponds at the site. Ecology required Graymont to investigate the sources contributing to the seepage of groundwater into the Waterway which has a high pH content. Graymont determined that the ponds do infiltrate into the groundwater and has looked at alternatives to line the ponds. Graymont also committed to processing their waste calcium carbonate "slag" pile to reduce the size of the pile by generating Pulverized Limestone product from it. In order to do this, Graymont committed to an expansion of their facility by constructing a crushing plant. This expansion will help to address issues regarding stormwater infiltration from the piles into groundwater by slowly eliminating the piles.

In 2008, the Port of Tacoma claimed "eminent domain" on Graymont Western. This leaves Graymont's future at the site uncertain and the company will most likely shut down their operations within the next ten years. Given this schedule, Graymont requested that Ecology consider postponing the installation of the pond liners. The facility argued that the cost of purchasing and installing the liners is not practical if the facility must shut down soon. Given this unique situation, Ecology has agreed to postpone delaying the installation of the liners until Graymont's future presence at the site is better defined.

I. Comparison of Effluent Limits with Limits of the Previous Permit Issued on June 1, 2004

Table 6. Comparison of Effluent Limits.

	Basis of Limit	Previous Effluent Limits: Outfall # 001		Proposed Effluent Limits: Outfall # 001	
Parameter		**Average Monthly**	**Maximum Daily**	**Average Monthly**	**Maximum Daily**

	Basis of Limit	Previous Effluent Limits: Outfall # 001		Proposed Effluent Limits: Outfall # 001	
Parameter		**Average Monthly**	**Maximum Daily**	**Average Monthly**	**Maximum Daily**
Total Suspended Solids	Technology	25 mg/L	50 mg/L	25 mg/L	50 mg/L
pH	Technology	Daily minimum is equal to or greater than 6 and the daily maximum is less than or equal to 9.		Daily minimum is equal to or greater than 6.0 and the daily maximum is less than or equal to 9.0.	
WET Acute Characterization	WET Rule	1/permit cycle		1/permit cycle	

IV. MONITORING REQUIREMENTS

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and that the discharge complies with the permit's effluent limits.

The accompanying permit requires Graymont Western to monitor for flow, temperature, chromium (hex), and mercury to further characterize the effluent. These pollutants could have an impact on the quality of the receiving water.

The monitoring schedule is detailed in the proposed permit under Special Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

A. Lab Accreditation

Ecology requires that facilities must use a laboratory registered or accredited under the provisions of chapter 173-50 WAC, *Accreditation of Environmental Laboratories* to prepare all monitoring data (with the exception of certain parameters).

V. OTHER PERMIT CONDITIONS

A. Reporting and Recordkeeping

Ecology based permit condition S3. on our authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

B. Operations and Maintenance Manual

Graymont Western is required to annually review their Operations and Maintenance (O&M) Manual and either confirm that it is up-to-date and submit the confirmation statement in a letter. If the Manual is not up-to-date, then Graymont Western must update it and submit it to Ecology. If no updates were submitted at the time the permit renewal application is due, then the O&M Manual must be resubmitted to Ecology at the time the application is due.

C. Solid Waste Control Plan

Graymont Western could cause pollution of the waters of the state through inappropriate disposal of solid waste or through the release of leachate from solid waste.

This proposed permit requires this facility to update the approved solid waste control plan designed to prevent solid waste from causing pollution of waters of the state on an as needed basis. An updated copy of the Solid Waste Control Plan is required to be submitted to Ecology within 30 days of making any changes. If no updates were made, the plan must be reviewed and submitted to Ecology for approval (RCW 90.48.080) at the time when the permit renewal application is due.

D. Spill Plan

This facility stores a quantity of chemicals on-site that have the potential to cause water pollution if accidentally released. Ecology can require a facility to develop best management plans to prevent this accidental release [section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080].

Graymont Western developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the facility to update this plan and submit it to Ecology within 30 days of making any changes. If no updates were made, the plan must be reviewed and submitted to Ecology for approval at the time when the permit renewal application is due.

E. Stormwater Pollution Prevention Plan

Graymont Western is required to develop and submit a Stormwater Pollution Prevention Plan (SWPPP). This requirement is consistent with other industrial facilities permitted to discharge industrial stormwater.

F. Temperature Monitoring Quality Assurance Project Plan and Data

Graymont Western is required to develop a Temperature Monitoring Quality Assurance Project Plan (QAPP). The QAPP must specify how temperature will be monitored in the effluent and the receiving waters. Temperature QAPP templates are available from Ecology at http://www.ecy.wa.gov/programs/wq/permits/guidance.html. The permit requires the facility to collect temperature data continuously and report to Ecology annually. Ecology will evaluate this data to determine whether or not temperature standards are complied with during the critical summer months.

G. Acute Toxicity Testing and Summary Report

Graymont Western is required to conduct acute toxicity effluent characterization tests twice this permit cycle. One set of tests (Fathead Minnow and Daphnid) is required during summer conditions and one set to be done during winter conditions. The facility must complete these tests and submit an Acute Toxicity Summary Report at the time when the permit renewal application is due.

H. General Conditions

Ecology bases the standardized General Conditions on state and federal law and regulations. They are included in all individual industrial NPDES permits issued by Ecology.

VI. PERMIT ISSUANCE PROCEDURES

A. Permit Modifications

Ecology may modify this permit to impose numerical limits, if necessary to comply with water quality standards for surface waters, with sediment quality standards, or with water quality standards for ground waters, after obtaining new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

Ecology may also modify this permit to comply with new or amended state or federal regulations.

B. Proposed Permit Issuance

This proposed permit includes all statutory requirements for Ecology to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the state of Washington. Ecology proposes to issue this permit for a term of five years.

VII. REFERENCES FOR TEXT AND APPENDICES

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Permit and Wastewater Related Information (http://www.ecy.wa.gov/programs/wq/wastewater/index.html)

2005. Technical Memorandum—Data Review for Graymont Western US, Inc., Tacoma, Washington, NPDES Permit WA0001007 from Denis Erickson to John Diamant. September 27, 2005.

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APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

Ecology proposes to reissue a permit to Graymont Western US, Inc. (Graymont). The permit prescribes operating conditions and wastewater discharge limits. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Application on June 9, 2008, and June 16, 2008, in the *Tacoma News Tribune* to inform the public about the submitted application and to invite comment on the reissuance of this permit.

Ecology will place a Public Notice on June 24, 2009, in the *Tacoma News Tribune* to inform the public and to invite comment on the proposed reissuance of this National Pollutant Discharge Elimination System permit as drafted.

The Notice –

- Tells where copies of the draft Permit and Fact Sheet are available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website.).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Asks people to tell us how well the proposed permit would protect the receiving water.
- Invites people to suggest fairer conditions, limits, and requirements for the permit.
- Invites comments on Ecology's determination of compliance with antidegradation rules.
- Urges people to submit their comments, in writing, before the end of the comment period
- Tells how to request a public hearing about the proposed NPDES Permit.
- Explains the next step(s) in the permitting process.

Ecology has published a document entitled **Frequently Asked Questions about Effective Public Commenting** which is available on our website at http://www.ecy.wa.gov/biblio/0307023.html.

You may obtain further information from Ecology by telephone, **360-407-6289**, or by writing to the permit writer at the address listed below.

Industrial Unit Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

The primary author of this permit and fact sheet is John Y. Diamant, P.E.

APPENDIX B--GLOSSARY

1-DMax or **1-day maximum temperature**--The highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of thirty minutes or less.

7-DADMax or **7-day average of the daily maximum temperatures**--The arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART--The acronym for "all known, available, and reasonable methods of prevention, control and treatment." AKART is a technology-based approach to limiting pollutants from wastewater discharges which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with RCW 90.48.010 and 520, WAC 173-200-030(2)(c)(ii), and WAC 173-216-110(1)(a).

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Annual Average Design Flow (AADF)--The average of the daily flow volumes anticipated to occur over a calendar year.

Average Monthly Discharge Limit--The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations. In addition it includes as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Ecology may conduct additional sampling.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring--Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Detection Limit--See Method Detection Level.

Dilution Factor (DF)--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90 percent.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report must contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limit--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Maximum Day Design Flow (MDDF)--The largest volume of flow anticipated to occur during a one-day period, expressed as a daily average.

Maximum Month Design Flow (MMDF)--The largest volume of flow anticipated to occur during a continuous 30-day period, expressed as a daily average.

Maximum Week Design Flow (MWDF)--The largest volume of flow anticipated to occur during a continuous 7-day period, expressed as a daily average.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the pollutant concentration is above zero and is determined from analysis of a sample in a given matrix containing the pollutant.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. It is the negative logarithm of the hydrogen ion concentration. A pH of 7.0 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Peak Hour Design Flow (PHDF)--The largest volume of flow anticipated to occur during a one-hour period, expressed as a daily or hourly average.

Peak Instantaneous Design Flow (PIDF)--The maximum anticipated instantaneous flow.

Quantitation Level (QL)--The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision &bias) achieves the objectives of the intended purpose. This may also be called Minimum Level or Reporting Level.

Reasonable Potential--A reasonable potential to cause a water quality violation, or loss of sensitive and/or important habitat.

Responsible Corporate Officer--A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to receiving waters may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Solid waste--All putrescible and non-putrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, contaminated soils and contaminated dredged material, and recyclable materials.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the facility. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into receiving waters.

APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on Ecology's homepage at http://www.ecy.wa.gov/programs/eap/pwspread/pwspread.html.

APPENDIX D--RESPONSE TO COMMENTS